

## CLAIMS

1. Powdery water-absorbing polymers comprising as components:

- 5
- 0.01 to 20 wt.% of a fine particle with a particle size of less than 200  $\mu\text{m}$ ,
  - 0.001 to 10 wt.% of a thermoplastic adhesive,
  - 60 to 99.998 wt.% of a water-absorbing polymer particle with a particle size of 200  $\mu\text{m}$  and above,

wherein

10 the fine particles are bound to the surface of the water-absorbing polymer particles by the thermoplastic melt adhesive and the powdery water-absorbing polymers have either

- a flow value (FFC) within the range from 1 to 13, or
- a dust portion of at most 6.

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2. Powdery water-absorbing polymers according to claim 1, with a flow value (FFC) in the range from 1 to 13 and a dust portion of at most 6, respectively based on the total weight of the powdery water-absorbing polymers.

20 3. Powdery water-absorbing polymers according to claim 1 or 2, wherein the thermoplastic adhesive has a melt temperature according to ISO 11357 of at least 50°C, preferably of at least 60°C and even more preferably of at least 70°C.

25 4. Powdery water-absorbing polymers according to any one of the preceding claims, wherein the thermoplastic adhesive has a melt viscosity according to Brookfield (ASTM E 28) with a number 27 spindle at a temperature of 160°C of less than 2000 Pas.

5. Powdery water-absorbing polymers according to any one of the preceding claims, wherein the thermoplastic adhesive comprises a polycondensate to at least 10 wt.%, preferably at least 50 wt.% and particularly preferably at least 90 wt.%.  
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6. Powdery water-absorbing polymers according to claim 5, wherein the polycondensate is a polyester.  
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7. Powdery water-absorbing polymers according to any one of the preceding claims, wherein the fine particle comprises an organic fine particle to at least 80 wt.%, based on the weight of the fine particle.  
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8. Powdery water-absorbing polymers according to any one of the preceding claims, wherein the fine particle comprises an inorganic fine particle to at least 80 wt.%, based on the weight of the fine particle.  
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9. Powdery water-absorbing polymers according to any one of the preceding claims, wherein these are secondary cross-linked in the surface region by means of a surface cross-linker.  
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10. Powdery water-absorbing polymers according to claim 9, wherein the surface cross-linker comprises at least one organic compound or at least one polyvalent metal cation.  
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11. Powdery water-absorbing polymer comprising to at least 30 wt.% a cross-linked, partially neutralized, preferably neutralized in the range of 60 to 80 mol.%, polyacrylic acid and with at least one of the following properties  
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- P1 a flow value (FFC) within the range of 1 to 13; or  
P2 a dust portion of at most 6,  
P3 an attrition index  $A_i$  within the range of 1 to 17;  
30 P4 an attrition difference  $A_d$  within the range of 0 to 7,

P5 a retention determined according to ERT 441.1-99 of at least 20 g/g.

12. Process for producing powdery water-absorbing polymers, wherein as components:

- 5                   -     0.01 to 20 wt.% of a fine particle with a particle size of less than 200  $\mu\text{m}$ ,
- 0.001 to 10 wt.% of a thermoplastic adhesive,
- 60 to 99.998 wt.% of a water-absorbing polymer particle with a particle size of 200  $\mu\text{m}$  and above,

10                   are brought into contact with each other at a temperature within the range of 120 to 250°C, preferably 150 to 220°C and particularly preferably 170 to 200°C.

13. Process according to claim 12, wherein the bringing into contact occurs in a continuously conveying mixing oven.

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14. Process according to claim 13, wherein the oven has movable, heated conveying means.

15. Process according to any one of claims 12 to 14, wherein as further  
20 component a secondary cross-linker is brought into contact.

16. Process according to claim 15, wherein the secondary cross-linker and the thermoplastic adhesive are conducted together to the other components.

25                   17. Process according to claim 15 or 16, wherein at least the secondary cross-linker is present in a liquid phase.

18. Powdery water-absorbing polymers, obtainable by a process according to any one of claims 12 to 17.

19. Powdery water-absorbing polymers according to claim 18 with at least one of the properties P1 to P5 defined in claim 11.

5           20. Powdery water-absorbing polymers according to any one of claims 1 to 11, 18 or 19, wherein at least 50 wt.% of the powdery water-absorbing polymers have a particle size within the range of greater than 50 to 2,000  $\mu\text{m}$ .

          21. Transport process, wherein powdery water-absorbing polymers according  
10 to any one of claims 1 to 12, 18 or 19 flow through a channel.

          22. Process according to claim 21, wherein the channel forms part of an installation for producing a water-absorbing polymer or of a dosing system for a water-absorbing polymer.

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          23. Composite, comprising powdery water-absorbing polymers according to any one of claims 1 to 12, 18 or 19.

          24. Chemical products, comprising powdery water-absorbing polymers  
20 according to any one of claims 1 to 12, 18 or 19.

          25. Use of a thermoplastic adhesive for alteration of the flow value (FFC) or the dust portion in powdery water-absorbing polymers comprising this thermoplastic adhesive with respect to powdery water-absorbing polymers not comprising this  
25 thermoplastic adhesive.